



FTC NOx info

James J Hoppe

to: Daniel C Havallo, Teresa J Simetkosky,
Stephani Campbell

02/26/2014 11:58 AM

All,

Please review the information from FTC below. We should probably have an internal discussion to see what we want to do from here.

Thanks,
Jim

----- Forwarded by James J Hoppe/GaryWorks/USS on 02/26/2014 11:57 AM -----

From: "Bogdan Iancu" <bogdan.iancu@fctinternational.com>
To: "James J Hoppe" <JJHoppe@uss.com>,
Cc: <sanjiv.dhanjal@fctinternational.com>
Date: 02/26/2014 11:17 AM
Subject: RE: Additional Information

Hello James,

Just following up to see if you have received my email and you are happy with us supplying a structured proposal as below.

One clarification I have to add here- the +/-15% NOx reduction is actually +/-15% accuracy in predicting NOx reduction (as in NOx targets are 85% approx. accurate, at the end of the modelling stage).

Hope that it makes more sense now.

Thanks.

Kind Regards,
Bogdan

From: Bogdan Iancu [mailto:bogdan.iancu@fctinternational.com]
Sent: Monday, 24 February 2014 5:53 PM
To: 'James J Hoppe'
Cc: sanjiv.dhanjal@fctinternational.com
Subject: RE: Additional Information
Importance: High

Hello James,

I thought I should give you an update.

We're still working on the data, comparing with what we have done on other plants and in similar processes. (also what makes sense and what we should be discarding at this stage as not relevant)

Initial estimates indicate 2-3lb/MMBtu NOx on NG burning using our technology, but we would require a couple

more days to finalise this.

If it looks like we can get you there, I will put that in writing in a proposal.

This proposal will be structured in 3:

- Phase One: one for CFD and chemical bed (reaction) modelling to come up with the best location and the number of burners required in the process to guarantee product quality and throughput. This will also cover the initial (+/-15%) NOx reduction (NOx targets) expected for your process whilst using our Gyro-Therm MKII burner system. At the end of this process we will come up with the front-faceplate design (the design parameters) of your burner.
- Phase II: Engineering of complete burner system (P&IDs), detailed design of burner, VT, controls, trolley, etc. Performance guarantees implied at the end of this stage.
- Third (at this stage we assume it'll be TBA- subject to the number of burners/other equipment selected on Phase I and II)- the complete equipment supply with the required performance guarantees.

Let me know please if you agree with our approach or if you want to have a chat on the phone to clarify any of the above.

Thank you (and sorry for the delay).

Kind Regards,
Bogdan Iancu
Executive VP
USA& Canada



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From: James J Hoppe [mailto:JJHoppe@uss.com]
Sent: Wednesday, 12 February 2014 12:24 PM
To: Bogdan Iancu
Subject: RE: Additional Information

Bogdan,

That is exactly what I would like to see.

Thanks and look forward to talking to you soon,
Jim

From: "Bogdan Iancu" <bogdan.iancu@fctinternational.com>
To: "James J Hoppe" <JJHoppe@uss.com>,
Date: 02/12/2014 12:15 PM
Subject: RE: Additional Information

Hi Jim,

I think that I have all I need to give you a preliminary indication.
Let us work on the data and we'll get back to you.

If we have a positive answer we will give you a quote to get you there (if that's what you want as well, of course).

Talk soon.

Kind Regards,
Bogdan Iancu
Executive VP
USA& Canada



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From: James J Hoppe [mailto:JJHoppe@uss.com]
Sent: Wednesday, 12 February 2014 11:28 AM
To: Bogdan Iancu
Subject: Fw: Additional Information

Responses below.

Thanks,
Jim

----- Forwarded by James J Hoppe/GaryWorks/USS on 02/12/2014 11:27 AM -----

From: Stephani Campbell/Keetac/USS
To: James J Hoppe/GaryWorks/USS@USS,

Cc: Daniel C Havalo/Headquarters/USS@USS, Teresa J Simetkosky/Minntac/USS@USS
Date: 02/12/2014 11:07 AM
Subject: Re: Fw: Additional Information

See comments below.

Stephani Campbell
United States Steel
scampbell@uss.com

218-778-8684
218-929-7208 (cell)

From: James J Hoppe/GaryWorks/USS
To: Daniel C Havalo/Headquarters/USS@USS, Stephani Campbell/Keetac/USS@USS, Teresa J Simetkosky/Minntac/USS@USS,
Date: 02/11/2014 10:17 AM
Subject: Fw: Additional Information

FYI, additional comments and requested information.

Thanks,
Jim

----- Forwarded by James J Hoppe/GaryWorks/USS on 02/11/2014 11:16 AM -----

From: "Bogdan Iancu" <bogdan.iancu@fctinternational.com>
To: "James J Hoppe" <JJHoppe@uss.com>,
Date: 02/11/2014 11:11 AM
Subject: RE: Additional Information

Hi James,

I need more pictures of the burners.

From what you have provided it looks like you have 2 x coal burners and one gas/oil burner in the middle. Am I correct to assume that? Yes. Is it still the same layout as 2006? Yes Sure you'd have a better picture showing exactly their position in the kiln as well. And newer...Not that we are readily able to locate. I don't have pictures of the travelling grate burners. Nor number (14 if I remember? All working/not?)/locations. Keetac does not have travelling grate burners. Those are at Minntac. For now our main focus is on the Keetac facility.

Our understanding was that you were trying to have one/ two burners that will be able to co-fire NG and coal (100% of each and % of each).

Looking at your current layout- would you rather have 2 burners with NG/coal capabilities replacing your existing coal pipes, or one coal/gas burner replacing all three that you have (placed in the middle)? Or it's up to us depending on what's best for the plant? Up to you to propose the best configuration for NOx reduction. Do you have 2 coal mills for your two coal pipes or one only and somehow you allow for the fuel to be split between the two? Could you please give us more details on the matter? Just one coal mill. The pipe has a just a plate divider that splits it to the two smaller lines.

All of these questions are introducing complexity and variables so we need to know what you are trying to achieve .

Thanks!

Kind Regards,
Bogdan